Message

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Sent: 3/8/2011 3:07:47 PM
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Subject: NEWS UPDATES: Industry, Utilities Say EPA's Perchlorate Determination Ignores Studies (Risk Policy Report)

Industry, Utilities Say EPA's Perchlorate Determination Ignores Studies

Posted: March 7, 2011

The chemical industry and a water industry source are arguing that EPA's determination that perchlorate in drinking water presents a risk to the population and must be regulated ignores critical recent evidence that refutes this argument, in addition to relying on a model that the agency indicates is flawed and may not be used in setting the standard.

The Perchlorate Information Bureau (PIB), which represents makers and users of perchlorate, argues that EPA has not met any of the three criteria necessary to regulate a water contaminant in drinking water, including that the compound causes an adverse effect on human health, exists at a frequency and level of concern and regulation of the compound presents a meaningful reduction in risk to human health. Perchlorate is used in munitions, rocket fuel and other explosives.

The group, sponsored by Aerojet, American Pacific Corporation, ATK and Lockheed Martin, argues that "to date, no research has shown an adverse effect in humans exposed to perchlorate, and the National Academy of Sciences has concluded that at exposure levels below 24.5 parts per billion (ppb) there is no effect on the body." The group's Feb. 2 statement adds that EPA's own data indicates that 99 percent of the sampled water utilities in California have less than 6.4 ppb perchlorate. The industry statement also quotes from a 2009 EPA Inspector General report, which agreed with the Bush administration's decision that there was insufficient public benefit to be gained by regulating perchlorate in drinking water systems nationally. The report states, "[F]urther reducing the exposure level below the [reference dose (RfD)] does not effectively lower risk."

Asked if PIB will sue the agency, a spokesman replies, "while no decisions have been made about possible legal action, the . . . companies will consider every necessary regulatory and legal avenue to ensure the science on this, which is very strong, is not overlooked or misinterpreted."

As a final agency action, the agency's determination is subject to legal review starting 60 days after it has been promulgated.

EPA's RfD is an estimate of the daily dose the agency expects a person can be exposed to over a lifetime without experiencing adverse health effects. The Bush EPA's 2008 proposal not to regulate perchlorate was based in part on its use of a pharmacokinetic model to estimate iodine uptake inhibition for different life stages. But the model has since been roundly criticized by public health activists and peer reviewers for ignoring some key components, such as the amount of iodine in people's bodies when they are exposed to perchlorate. The chemical affects the thyroid's uptake of iodine, which if sufficiently compromised can cause developmental and neurological health effects.

A water utility source says the agency indicates in the determination that its decision is not based on the model while also arguing that it intends to protect the sensitive subpopulations of pregnant women, fetuses and infants identified by the model. The agency cannot have it both ways, the source argues.

The source also questions EPA's decision to refrain from citing two recent studies, which the source argues cast doubt upon the necessity of regulating the chemical in drinking water nationally. The first is a study of pregnant women exposed to low levels of perchlorate in their drinking water, compared with their thyroid hormone levels. The study is "the biggest one out there" in the number of individuals studied, the source notes. It was performed by researchers at Boston University's medical school, led by Elizabeth Pearce. Published in *The Journal of Clinical Endocrinology and Metabolism* last April, the study considers more than 1,600 Welsh and Italian women in their first trimester of pregnancy. It concluded that "low-level perchlorate exposure is ubiquitous [in the pregnant women studied] but did not affect thyroid function in this cohort of iodine-deficient pregnant women," according to an abstract of the article, *Perchlorate and Thiocyanate Exposure and Thyroid Function in First-Trimester Pregnant Women*.

Linda Birnbaum, director of the National Institute of Environmental Health Sciences, referenced the Pearce study in her written testimony before the Senate Environment & Public Works Committee Feb. 2 -- the same hearing where EPA Administrator Lisa Jackson announced that EPA will regulate the chemical. But Birnbaum noted that there is conflicting evidence in the scientific literature regarding whether perchlorate causes adverse effects in exposed people. Birnbaum indicated a need for greater study of the chemical's risks to specific groups that may be more susceptible to perchlorate exposure.

"[T]o date, human studies on environmental exposure to low levels of perchlorate have been inconsistent," according to Birnbaum's Feb. 2 written testimony. "Further research is required to determine if there are effects on vulnerable groups such as low birth weight or preterm infants, or whether maternal perchlorate exposure (with or without low dietary iodide intake) causes neurodevelopmental outcomes in infants."

Birnbaum's testimony also noted that perchlorate "is a chemical found naturally in arid climates and is manufactured in the U.S. for a variety of uses primarily as a solid rocket propellent," contradicting Jackson's description of the chemical in her opening remarks to the committee.

Jackson described perchlorate as "a toxic component of rocket fuel. It is not naturally occurring. It can cause thyroid problems and may disrupt the normal growth and development of children in the womb."

The water industry source also points to a 2009 paper, published in the journal *Nutrition Reviews* by a Food & Drug Administration (FDA) biologist, Paula Trumbo. The paper concludes, "Based on the FDA [Total Diet Study of 2005-2006], perchlorate exposure in the estimated total mean population (all persons aged 2 years and above) from the foods and beverages measured was more than 10-fold lower than the RfD of 0.7 mg/kg/day. A small percentage (4%) of public water systems had at least one analytical detection of perchlorate at levels greater than or equal to the method reporting limit of 4 mg/L."

Trumbo continues, "Although pregnant women and their fetuses and newborns have the greatest potential for risk of adverse health effects following exposure to perchlorate, data are lacking to demonstrate a causal association between perchlorate consumption and adverse health effects in these high-risk populations . . . Based on the available information, the FDA is not recommending that consumers of any age alter their diet or eating habits to reduce perchlorate exposure."

The water industry source adds that there are sources of perchlorate other than rocket fuel or firecrackers, including water disinfection

treatments used by some utilities. Utilities disinfect their water with chlorine or sodium hypochlorite, the source explains. The latter is considered by some to be a safer alternative to using chlorine, including some that champion the adoption of inherently safer technologies at water utilities. However, the chemical can easily degrade into perchlorate before it is added to water to treat it, particularly in warm climates, the source says. The source points to the Massachusetts' Department of Environmental Protection's explanation for why it set that state's standard for perchlorate no lower than 2 ppb -- to date the strictest in the country.
California's proposed public health goal of 1 ppb is stricter, though the Golden State has yet to propose a new drinking water standard informed by that goal. California's existing maximum contaminant level (MCL) for perchlorate is 6 ppb. Yet Massachusetts determined that it could not set a standard stricter than 2 ppb because if it did, some utilities would violate the standard simply by disinfecting their water with sodium hypochlorite, which can degrade into perchlorate. -- *Maria Hegstad*

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